

REMARKS

I. Present Status of the Application

The Office Action has rejected claims 8-15 under 35 U.S.C. 103(a) as being unpatentable over Braeuer et al. (US 5,164,063, referred to hereinafter as “Braeuer”) in view of Yokoyama (JP 62-089864, abstract, referred to hereinafter as “Yokoyama”).

In response thereto, Applicant respectfully traverses the 103 prior art rejections for at least the following reasons. It is submitted that the presently pending claims 8-15 are placed in proper condition for allowance, and reconsideration of the application and claims is most earnestly requested.

II. Discussion of Claim Rejections under 35 U.S.C. 103

Claims 8-15 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Braeuer in view of Yokoyama.

It is submitted that the obviousness rejection based on the cited references is improper as the references fail to teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. After carefully considering the remarks set forth in this Office Action and the cited references, Applicant hereby traverses these rejections as described in detail hereinafter. As such, Applicant submits that the present invention, as set forth in claims 8-15, is neither taught, suggested nor disclosed by Braeuer and Yokohaya, or any other cited references, taken alone or in combination.

The present invention teaches in amended claims 8 and 13 respectively, among other things, *“two symmetrical magnets in two correspondingly symmetrical magnet sets have opposite orientations in magnetic pole and two adjacent magnets in each of said magnet sets have opposite orientations in magnetic pole”*. In other words, each magnet within a magnet set has a corresponding magnet within the other magnet set, which is axially-symmetric or planarly-symmetric to the foregoing magnet set, and the two symmetrical magnets belonged to two symmetrical magnet sets respectively have opposite orientations in magnetic pole. That is to say, one magnet with the N pole directed upward and the other magnet with the N pole directed downward are disposed symmetrically on either side of a dividing plane or axis.

Braeuer, on the other hand, teaches in FIG. 3 a sputtering cathode arrangement according to the magnetron principle for the coating a flat annular surface by mounting two groups of magnets 9, 9' and 10, 10' configured similarly on the rotating yoke plate (col. 3, lines 27-38). Each of the magnets 9 and 10 surrounds the magnet 9' and 10' respectively, such that the two magnet groups form two plasma rings 32 and 33 under process conditions. As shown in FIG. 3 of Braeuer, the polarity of magnets 9 and 10 are both N poles, and the polarity of magnets 9' and 10' are both S poles. Accordingly, Braeuer fails to teach or suggest the feature *“two symmetrical magnets in two correspondingly symmetrical magnet sets have opposite orientations in magnetic pole”*, as recited in claims 8 and 13. However, the Office contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine

the polar magnet configuration taught of Yokoyama to cause symmetric magnets to be polarly opposite in Braeuer, whereas Applicant respectfully disagrees.

Yokoyama discloses in abstract that “[T]he magnet pairs 23 are magnet S poles (or N pole) having a sectorial, triangular or trapezoidal sectional shape and the N poles (or S poles) disposed at equal intervals on the outside periphery thereof.” In other words, all inner parts of the magnet pairs 23 are with the same polarity (i.e. S pole), and all peripheral of the magnet pairs 23 are with the same polarity (i.e. N pole), as shown in FIGs. 1B and 2. Accordingly, Yokoyama teaches that the polarities of the outer magnets are all the same, and also the polarities of the inner magnets are all the same, so as to improve the utilizing efficiency of a target, film thickness distribution and film forming speed.

It is noted that even combining the teachings of Braeuer with the polar magnet configuration taught by Yokoyama, a person skilled in the art is merely able to obtain the magnets 9 and 10 are both N poles when the magnets 9’ and 10’ are both S poles or, in the alternative, the magnets 9 and 10 are both S poles when the magnets 9’ and 10’ are both N poles. That is to say, there exists no teaching, suggestion or motivation for a person skilled in the art to arbitrarily convert the polarities of magnets 9, 9’, 10 and 10’ in Braeuer, and therefore, neither Braeuer nor Yokoyama teaches the magnets symmetric to each other have opposite polarity orientations.

Since Braeuer and Yokoyama references apparently fail to teach, suggest or disclose the technical features regarding “two symmetrical magnets in two correspondingly symmetrical magnet sets have opposite orientations in magnetic pole”, as set forth in

independent claims 8 and 13, one of ordinary skill in the art at the time the invention was made CANNOT achieve the claimed invention by modifying Braeuer with Yokoyama. Consequently, it is strongly believed that the combination of Braeuer in view of Yokoyama is legally deficient to render independent claims 8 and 13 obvious.

In at least the aforementioned regards, Applicant respectfully dissents from the Office's interpretation of the cited art and its application to claims 8 and 13 of the present invention for at least the reason that people skilled in the pertinent art would not be able to arrive at the present invention by combining Braeuer in view of Yokoyama. Thus, Applicant submits that independent claims 8 and 13 distinctly and patently define over the prior art references, and thus the rejections thereof should be rendered moot. Applicant further respectfully points out that if independent claims 8 and 13 are patentable over the prior art of record, claims 9-12 and 14-15, based on their dependence upon respective claims 8 and 13, are allowable as a matter of law, because these dependent claims contain all features of their base claims.

Hence, favorable consideration of the present application and withdrawal of these rejections are respectfully solicited.

CONCLUSION

For at least the foregoing reasons, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,

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